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CLINICAL ARTICLE

Community mobilization and service strengthening to increase awareness and use of postabortion care and family planning in Kenya

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ABSTRACT

Objective: To evaluate whether a community engagement and service-strengthening intervention raised awareness of family planning (FP) and early pregnancy bleeding (EPB), and increased FP and postabortion care (PAC) use. *Methods:* The intervention was carried out in 3 communities in Kenya over 18 months; 3 additional communities served as the comparison group. A pre–post, contemporaneously controlled, quasi-experimental evaluation was conducted independently from the intervention. *Results:* Baseline characteristics were similar. Awareness of FP methods increased ($P \leq 0.001$) in the intervention group. The incidence of reported EPB (before 5 months of pregnancy) in the comparison group was 13.3% at baseline and 6.0% at endline ($P = 0.02$); 79% at baseline and 100% at endline sought care ($P > 0.05$). In the intervention group, recognition and reporting of EPB increased from 9.8% to 13.1% ($P > 0.05$); 65% sought PAC at baseline and 80% at endline ($P = 0.11$). The relative increase in EPB reports after the intervention was over 3 times greater in the intervention group ($P \leq 0.01$). *Conclusion:* The intervention raised FP and EPB awareness but not FP and PAC services use. As fewer comparison group respondents reported experiencing EPB, the PAC impact of the intervention is unclear. Mechanisms to improve EPB reporting are needed to avoid this reporting bias.

1. Introduction

Unsafe abortion accounts for 9–13% of the pregnancy-related mortality globally [1,2]. In some countries, as many as 25% of all maternal deaths are thought to be attributable to unsafe abortion [2]. The WHO estimates that 99% of abortions performed in Africa are unsafe and that 60% of abortion-related maternal deaths occur in Eastern Africa [3,4].

Nearly 10% of the maternal deaths in Eastern and Southern Africa occur in Kenya, where the maternal mortality ratio is 488 deaths per 100 000 live births, representing 5500 annual deaths [5], with one-third of these attributable to unsafe abortion [6,7]. Since 2003, the Rift Valley Province has experienced the highest abortion-related outpatient morbidity in the country, with 10,958 abortion-related deaths in 2004 alone [8]. In recognition of this problem, the Kenyan government issued standards and guidelines for reducing the abortion-related morbidity and mortality in 2012 [9]. The guidelines emphasize the need for community education, sensitization, and advocacy in conjunction with the training of community health workers (CHWs) and community health extension workers (CHEWs) to provide information and improve pregnancy prevention and abortion care services [9].

In an effort to increase the awareness of family planning, postabortion care (PAC), and reproductive health services and to improve access to, and quality and use of, these services in the Rift Valley Province, the Responding to the Need for Family Planning through Expanded Contraceptive Choices and Program Services (RESPOND) Project designed and implemented the Community Mobilization for Postabortion Care (COMMPAC) intervention. This intervention used the community action cycle approach to centrally involve communities, in order to raise the awareness and use of family planning and PAC services. Community mobilization that fosters engagement through local participation is a popular mechanism to improve the planning for and use of health care in resource-limited settings [10]. Such mobilization can raise awareness of when health care is necessary, where effective care is available, and how to seek timely care, and it can leverage community resources, which—in addition to having the potential to reduce the stigma associated with PAC—ultimately improves well-being and responsiveness to health problems [11].

The COMMPAC intervention was supported by the PAC Working Group of the US Agency for International Development and approved

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and supported by Kenya's Ministry of Health (MOH). The intervention engaged districts and communities to strengthen institutional PAC service provision capacity; to expand community involvement in, and knowledge about, the prevention and treatment of postabortion complications; to build community capacity that addresses PAC-related needs; and to encourage the involvement of those who are most marginalized and most affected by abortion complications.

The project was aligned with the Kenyan MOH and its Community Strategy to support existing structures and use them as entry points into communities. Discussions with the MOH and the Naivasha District Health Management Team began in 2009. The intervention was approved by the MOH Division of Reproductive Health and the Division of Community Services. A joint orientation was conducted with the District Health Management Team to harmonize work plans and indicators.

The intervention activities and study sites ("community units") were selected jointly with the District Health Management Team and the CHEWs. The intervention package was guided by the principles of the Supply–Enabling Environment–Demand (SEED; EngenderHealth, New York, NY, USA) framework, an approach that promotes synergism between the components of supply, enabling environment, and demand to improve sexual and reproductive health. The intervention was carried out in selected communities in Naivasha District, Rift Valley Province from July 1, 2010, to December 31, 2011.

The present study attempted to determine whether this intervention of community engagement and service strengthening raised the awareness of family planning and danger signs in pregnancy—particularly early pregnancy bleeding (EPB)—and whether it increased the use of family planning and PAC services.

2. Materials and methods

A pre–post, controlled, quasi-experimental evaluation was conducted independently by the Population Council under the RESPOND project. Six study clusters (community units) in Naivasha District were selected in collaboration with the MOH, based on similarities in their urban–rural population distribution, service coverage, socioeconomic profile, and level of economic development (Table 1). Each cluster comprised 5 or more villages and was theoretically being served by 2 CHEWs and 50 CHWs. Three clusters were randomly allocated to the intervention group and the remaining 3 clusters comprised the comparison group.

Although the community units had been selected with the aim of obtaining study groups with similar characteristics, there were more than twice as many women in the intervention group (baseline n = 378, endline n = 421) as in the comparison group (baseline n = 181, endline n = 200) both before and after the intervention (Table 2). The attained harmonic mean sample size of the baseline and endline surveys for the comparison group was 200 and that for the intervention group was 398, with an 80% power to detect a 30% difference in the use of family planning methods, assuming a baseline family planning use of 45%, a Type I error of 5%, and a 2-tailed test.

Table 1
COMMPAC intervention and comparison site characteristics.

Community unit	Population size	MOH dispensary	MOH health center	Private medical clinic	Faith-based health center
Comparison group					
Eburu	6798	1	0	1	0
Maraigushu	10 000	1	0	0	0
Moi Ndabi	7000	1	0	0	0
Intervention group					
Karunga	12 874	1	0	0	0
Kiambogo	32 450	2	1	1	0
Longonot	4722	1	0	0	1

Abbreviation: MOH, Ministry of Health.

Household baseline surveys were conducted from May 5 to June 30, 2010 (before the intervention activities commenced), and endline surveys were implemented from January 5 to February 29, 2012 (18 months after the intervention became operational). Four villages were randomly selected from each community unit; in each village, every third household was visited, beginning with a starting point identified by the CHWs. One eligible respondent— a female household member aged 18–49 years—was randomly selected from each household. Selected households that did not include an eligible respondent were replaced with the next available household with an eligible respondent. All consenting, eligible women participated in individual interviews to assess their sociodemographic characteristics, pregnancy and childbearing experiences and intentions, knowledge and use of reproductive health services, and exposure to community-based healthcare interventions. The May–June 2010 and January–February 2012 cross-sectional surveys were conducted in the same villages.

Written informed consent was obtained from all participants before the interviews were conducted. The study tools were translated into, and the interviews conducted in, Kiswahili, the national language. The study received ethics clearance from the Ethics Review Committee of the Kenya Medical Research Institute on January 25, 2010, and from the Population Council Institutional Review Board on March 17, 2010.

The intervention was implemented with the approval and support of the MOH. Naivasha-based CHWs and CHEWs were trained on the community action cycle (Fig. 1), a highly participatory capacity-building process that facilitates community mentoring, involvement, and mobilization through 3-day sessions in which community members learn how to take action for their own health. It also engages communities to self-diagnose underlying issues related to health problems and inspires them to look to community-endorsed leadership and available resources to address identified issues.

A set of community behavior change communication flip cards (Fig. 2) was provided and reviewed with the CHEWs and CHWs; the CHEWs and CHWs then used the flip cards in house-to-house outreach visits and on community dialog and action days. Topics covered included misconceptions and negative rumors about family planning methods, religious opposition, and lack of partner support for problems such as long distances to the nearest facility, poor roads, lack of trained providers, and poor provider attitudes. More than 630 community members participated in the mobilization sessions.

In addition, 2 community–facility linkage meetings were held with the trained CHEWs and CHWs to discuss progress on their action plans and to jointly resolve problems (including negative rumors about family planning methods, religious opposition, long distances to the nearest facility, poor roads, lack of trained providers, unfavorable facility hours, lack of partner support, poor provider attitudes, and lack of equipment and supplies for manual vacuum aspiration).

None of the local dispensaries had the capacity to provide PAC at the project's inception. Accordingly, in partnership with the MOH, the RESPOND Project improved the service capacity in facilities serving the communities in the intervention group. This was achieved by training 16 providers (clinical officers and nurses) at existing Naivasha dispensaries and health centers in PAC and by training 20 providers in family planning. The clinical officers and nurses had received previous training in related health procedures; as part of the project, they received an additional week of PAC training and a week of family planning training. The PAC training included instruction regarding surgical procedures and manual vacuum aspiration; issues related to patient comfort, privacy, hygiene, and cleanliness in the diagnostic, waiting, and recovery areas; relevant medications, instruments, and supplies; and post-procedure counseling. The family planning training included instruction on patient intake, insertion and removal of intrauterine devices and implants, oral and injectable contraceptives, and condoms. Community problem diagnosis also provided insights to the project as to how services could be refined to meet the communities'

Table 2
Sociodemographic characteristics by study group and timing of the survey.

	Baseline			Endline		
	Comparison group (n = 181)	Intervention group (n = 378)	*P* value	Comparison group (n = 200)	Intervention group (n = 421)	*P* value
Age, y	30.32 ± 7.60	31.03 ± 7.90	0.32	31.46 ± 7.65	31.90 ± 8.13	0.52
Highest level of education						
No education	16 (8.8)	13 (3.4)[b]	0.03	21 (10.5)	23 (5.5)	0.34
Primary incomplete	75 (41.4)	136 (36.1)		57 (28.5)	126 (29.9)	
Primary complete	69 (38.1)	152 (40.3)		77 (38.5)	173 (41.1)	
Secondary or greater	21 (11.7)	76 (20.1)		45 (22.5)	99 (23.5)	
Currently married	156 (86.2)	313 (82.8)	0.31	168 (84.0)	353 (83.8)	0.96
Husband's main occupation						
Unemployed/ disabled	2 (6.4)[c]	5 (3.2)[d]	0.13	2 (4.8)[e]	11 (4)[f]	0.08
Manual/domestic	77 (39.7)	133 (35.6)		32 (11.3)	82 (13.3)	
Professional/ technical	8 (5.1)	19 (6.1)		13 (7.7)	22 (6.2)	
Self-employed	22 (14.1)	50 (16)		25 (14.9)	78 (22.1)	
Casual labor	24 (15.4)	49 (15.7)		37 (22)	71 (20.1)	
Other	30 (19.2)	73 (23.4)		66 (39.3)	121 (34.2)	
Radio/tape recorder	147 (81.2)	321 (84.9)	0.27	171 (85.5)	355 (84.3)	0.70
Television	56 (30.9)	118 (31.2)	0.95	71 (35.5)	126 (30.0[g])	0.17
Bicycle	86 (47.5)	158 (41.8)	0.20	103 (51.5)	174 (41.3)	0.02
Motorcycle	8 (4.4)	19 (5.0)	0.75	28 (14.0)	39 (9.3)	0.09
Mobile phone	80 (44.2)	224 (59.3)	0.001	134 (67.0)	303 (72.0)	0.21
Number of residents in the household	5.39 ± 2.27	5.41 ± 2.19	0.95	5.49 ± 2.00	5.51 ± 2.09	0.90
Number of living children	3.63 ± 2.24	3.56 ± 2.21	0.73	3.76 ± 2.24	3.87 ± 2.21	0.57
Currently pregnant	15 (8.5)[h]	35 (9.3)[i]	0.75	15 (7.5)	40 (9.5)	0.41
Gravidity	3.94 ± 2.62	3.38 ± 2.13	0.11	3.67 ± 2.32	3.60 ± 2.44	0.84
Terminated previous pregnancy	25 (14.0)[j]	41 (11.1)[k]	0.32	17 (8.6)[l]	62 (14.9)[m]	0.03
Previous stillbirth	4 (2.2)	18 (4.9)[n]	0.14	5 (2.5)[m]	14 (3.4)[m]	0.57
Pregnant in the preceding year	59 (34.1)[o]	106 (29.8)[p]	0.99	67 (34.0)[q]	141 (34.0)[r]	>0.99
Outcome of pregnancy in the preceding year						
Still pregnant	6 (10.3)[s]	8 (8.4)[q]	0.45	9 (13.4)[r]	22 (15.7)[t]	0.88
Live birth	745 (7.6)	82 (86.3)		56 (83.6)	113 (80.7)	
Stillbirth	1 (1.7)	1 (1.1)		0 (0.0)	1 (0.7)	
Did not come to term	6 (10.3)	4 (4.2)		2 (3.0)	4 (2.9)	

[a]Values are given as mean ± SD or number (percentage) unless otherwise indicated.
[b]n = 377; [c] n = 156; [d] n = 12; [e] n = 168; [f] n = 353; [g] n = 420; [h] n = 177; [i] n = 376; [j] n = 178; [k] n = 370; [l] n = 198; [m] n = 416; [n] n = 369; [o] n = 173; [p] n = 356; [q] n = 95; [r] n = 67; [s] n = 58; [t] n = 140.

perceived needs. EngenderHealth gave privately financed manual vacuum aspiration kits to the providers.

The MOH Community Strategy was the foundation for enhancing the accountability and responsibility of service providers and community members alike and for increasing access to, and use of, sustainable, decentralized, lower-level healthcare services in the community units [12].

After completion of the endline survey, the intervention was also provided to all communities in the comparison group.

The χ^2 and *t* tests were used for the analysis of categorical and continuous data, respectively, to compare the sociodemographic and reproductive health characteristics between the study groups at baseline and endline, and to compare changes in the outcome variables within each study group between the baseline and endline surveys. Intention-to-treat logistic regression analyses were used to improve the internal validity by controlling for sociodemographic study group differences. Missing values were rare (data for 1–4 people per variable) and were replaced with the mean value, and categorical variables were dummy-coded in the logistic regression analyses. Because there were few nulliparous women in the sample, all analyses were limited to parous women (excluding 16 women from the comparison group and 44 from the intervention group). The analyses of PAC use were limited to women who reported having experienced EPB. $P < 0.05$ was considered statistically significant. The data were analyzed with SPSS version 20 (IBM, Armonk, NY, USA) and Stata version 8 (StataCorp, College Station, TX, USA).

3. Results

The communities in the intervention group were serviced by more facilities than the communities in the comparison group, but most family planning and PAC services were provided by health dispensaries, which were distributed equally across the study groups (Table 1).

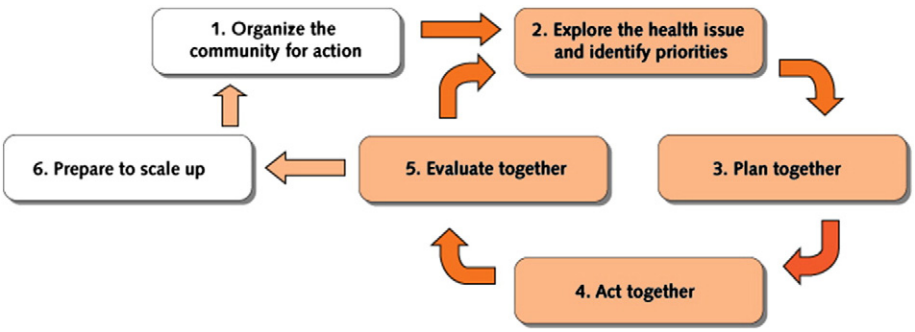

Fig. 1. Community action cycle.

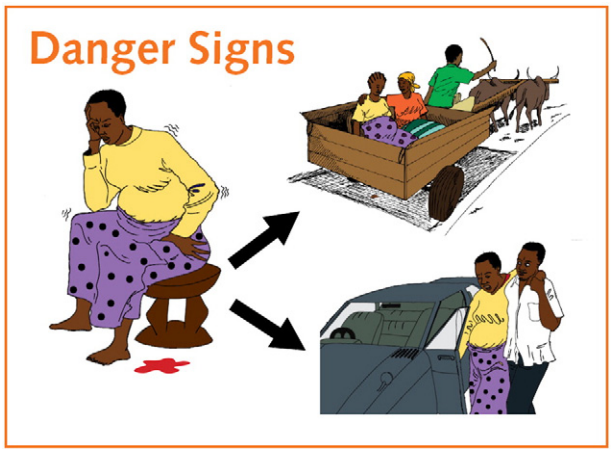

Fig. 2. Behavior change communication flip card example.

During both survey periods, the women's mean age was 30–32 years, most women had a primary-level education and were married, they had lived in the village for approximately 11 years on average, and they had given birth 4 times on average; the average household comprised 5–6 people (Table 2). In the baseline survey, almost 60% of the women in the intervention group had cell phones, compared with 44% in the comparison group ($P \leq 0.001$). Also at baseline, 11.1% of women in the intervention group and 14.0% of women in the comparison group reported having a previous pregnancy that did not reach term ($P = 0.03$). During the endline survey, 14.9% of the women in the intervention group reported having a previous pregnancy that did not reach term, compared with 8.6% in the comparison group ($P = 0.03$).

Almost all (more than 90%) women in the 2 study groups and during the 2 study periods had heard about a family planning method (Table 3); however, this was true for slightly fewer women in the intervention group in the baseline survey, and a highly significant ($P \leq 0.001$) increase was observed in the intervention group in the endline survey. In both groups, increases of 7%–10% in the use of family planning and modern contraceptives between baseline and endline were seen among premenopausal women who were not sterilized and not currently pregnant, although these increases were not statistically significant.

In the comparison group, 13.3% of the women in the baseline survey said that they had experienced EPB (before the fifth month of pregnancy), whereas only 6.0% reported this experience in the endline survey ($P = 0.02$) (Table 3). By contrast, the percentage of women reporting EPB in the intervention group increased from 9.8% to 13.1% ($P = 0.14$). In the comparison group, 79% of the women who reported EPB at baseline sought PAC, compared with 100% of the women who reported EPB at endline ($P = 0.09$). Of the women in the intervention group reporting EPB at baseline, 65% sought PAC, compared with 80% of the women reporting this problem at endline ($P = 0.11$).

The unadjusted logistic regression analysis (Table 4) indicated that a greater proportion of women in the comparison group than in the intervention group sought PAC services ($P = 0.06$), and more women did so during the endline period than at baseline ($P = 0.03$). However, the interaction of study group and study period—reflecting the study groups' relative change in the use of PAC services after the intervention period—was not significant with (shown) or without (not shown) covariate adjustment. By contrast, the relative increase in the proportion of women reporting an experience of EPB was more than 3 times greater in the intervention group (unadjusted $P = 0.005$; adjusted $P = 0.01$).

The COMMPAC project improved both the accessibility to and the quality of PAC. At endline, 2 of 42 (4.8%) women in the intervention group had to wait more than 1.5 hours for PAC services, compared with 3 of 12 (25.0%) women in the comparison group ($P = 0.06$). Of the 54 women who reported during the endline period that they had sought PAC services, 15 (37.5%) women in the intervention group had a surgical procedure for abortion care, compared with 1 (8.3%) woman in the comparison group ($P = 0.07$). After the intervention, more than twice as many women in the intervention group participated in nongovernmental or CHW meetings focused on EPB (intervention group, 18 [9.0%]; comparison group, 27 [7.1%]; $P \leq 0.001$).

4. Discussion

The present study assessed whether an intervention of community engagement and service strengthening raised awareness of family planning and EPB and increased the use of family planning and PAC services.

The COMMPAC intervention did indeed raise the awareness of family planning methods, but unlike larger and longer operations research projects [13,14], it did not increase the use of such methods. The study duration (18 months) may have been too short to sufficiently influence the cultural and gender norms that inhibit family planning use.

In addition, the intervention significantly increased (by 3.3%) the proportion of women who reported and, we infer, recognized EPB, in contrast to a significant decline (by 7.3%) in the reported incidence of EPB in the comparison group. It is less certain whether the intervention increased the use of PAC services. What is clear is that far fewer women in the comparison group than in the intervention group reported having experienced EPB in the endline survey, indicating a reporting bias. In the context of PAC services, it is unclear whether the social stigma that is associated with abortion in much of Sub-Saharan Africa [12] affected the recognition and/or reporting of EPB and the use of PAC services in the

Table 3
Family-planning and postabortion care study group and survey round.[a]

	Comparison group			Intervention group		
	Baseline	Endline	*P* value	Baseline	Endline	*P* value
Ever heard about FP methods	n = 181 174 (96.1)	n = 200 195 (97.5)	0.45	n = 378 351 (92.9)	n = 421 416 (98.8)	≤0.001
Currently using FP[b]	n = 134 63 (47.0)	n = 115 64 (55.7)	0.17	n = 258 122 (47.3)	n = 256 137 (53.5)	0.16
Currently using a modern FP method[b,c]	n = 134 51 (38.1)	n = 115 57 (49.6)	0.07	n = 258 106 (41.1)	n = 256 123 (48.0)	0.11
Reported EPB experience	n = 180 24 (13.3)	n = 200 12 (6.0)	0.02	n = 378 37 (9.8)	n = 420 55 (13.1)	0.14
Sought PAC services	n = 24 19 (79.2)	n = 12 12 (100.0)	0.09	n = 37 24 (64.9)	n = 44 35 (80.0)	0.11

Abbreviations: EPB, early pregnancy bleeding; FP, family planning; PAC, postabortion care.
[a] Values are given as number (percentage) unless otherwise indicated.
[b] Excludes women who were menopausal, had been sterilized, or were currently pregnant.
[c] Includes contraceptive pills, intrauterine devices, injections, condoms, implants, female sterilization, emergency contraception, and dual protection.

Table 4
Logistic regression analysis of reported EPB and PAC use.[a]

	Log odds ratio	*P* value	95% CI for Exp(B)	
			Lower	Upper
Reported having experienced EPB (n = 1165)				
Unadjusted				
Study group	1.245	0.290	0.829	1.869
Study period	0.987	0.945	0.683	1.426
Adjusted for interactions and covariates				
Study group	0.759	0.353	0.425	1.357
Study period	0.443	0.040	0.204	0.962
Interaction of study group and period	3.242	0.010	1.332	7.888
Sought PAC for reported EPB (n = 128)				
Unadjusted				
Study group	0.347	0.058	0.116	1.039
Study period	2.657	0.031	1.094	6.449
Adjusted for interactions and covariates				
Study group	0.081	0.012	0.011	0.58
Study period	181908782.6	0.998	0	0
Interaction of study group and period	0	>0.99	0	0

Abbreviations: CI, confidence interval; EPB, early pregnancy bleeding; Exp(B), exponentiation of the B coefficient; PAC, postabortion care.
[a] Variable(s) entered on step 1: study group (0 = comparison, 1 = intervention), study period (0 = baseline, 1 = endline), interaction (study group × study period), respondents' age in years, highest level of education (dummy-coded), currently married, years of residence in the community, religion (dummy-coded), ownership of radio/tape recorder, television/VCR/VCD/DVD, refrigerator, bicycle, motorcycle, landline, mobile phone, or household ownership (dummy-coded), and number of usual household residents.

comparison group during the endline survey or whether the COMMPAC project reduced women's inhibitions to report EPB and seek PAC services in the intervention group.

A verbal autopsy assessment might have helped to elucidate the extent to which reports of EPB—presumably EPB that did not receive timely or effective care—were missed because of abortion-related death. In the present study, the incidence of abortion-related death would theoretically have been higher in the comparison group because the awareness of PAC services was lower. Verbal autopsy information on maternal death and its causes, and on associated care-seeking behavior might be considered in future evaluations to improve EPB estimates.

Although CHWs can have a key role in providing critical health information and services at the household level, active community engagement and participation in CHW programs may be essential to their success [14]. Various cluster randomized controlled trials [15–17] indicate that sufficiently broad and intensive community mobilization efforts that inspire community engagement can have an enormous impact, particularly those with sufficient implementation time. For example, participatory interventions that engaged women in group meetings to encourage learning and action in conjunction with improving service readiness and quality of care reduced neonatal mortality by 30% and maternal mortality by 80% in a high-mortality setting in Nepal [17]. Even with little change in care-seeking, socioculturally contextualized community engagement improved birth preparedness and neonatal care in Uttar Pradesh, India, and nearly halved neonatal mortality [18].

The duration of the COMMPAC project may have been too short to observe significant improvements in the recognition of, and care-seeking for, postabortion complications. A study [19] of a community-based newborn care intervention package conducted in Sylhet, Bangladesh, found significant benefit, but only during the last 6 months of a 30-month intervention. Consistent with observations that community engagement is necessary to increase the use of PAC and reproductive health services [20,21], it seems likely that the COMMPAC intervention both raised the awareness of PAC and reduced the social stigma surrounding it, thereby minimizing the under-reporting of EPB as evident in the intervention group at endline. Mechanisms to improve the reporting of EPB need to be developed to avoid this bias in the future. Such mechanisms might also help to distinguish between spontaneous and induced abortions, which could not be accomplished in the present study, nor in most other studies.

The existing evidence indicates that community mobilization can significantly improve maternal, neonatal, and reproductive health [22]. However, many of the most effective community mobilization efforts have been intensive; yet, questions remain about their cost-effectiveness and scalability, and whether they reach the most disadvantaged in society [11]. This requires further investigation.

Other limitations may also have influenced the study results. The sample size and the number of clusters in each study group were small. Matching or randomization stratified by population size and other key characteristics (rather than simple randomization of clusters) can produce more equivalent sample sizes and improve baseline similarity between the study groups. It is recommended to increase the study duration and the sample size to better represent the target population and to detect smaller changes than those initially considered.

In summary, the COMMPAC intervention significantly raised awareness of family planning methods and improved the recognition of EPB, but it did not increase the use of family planning or PAC services. Because significantly fewer women reported EPB in the comparison group, the impact of the intervention is unclear. Mechanisms need to be developed to avoid an EPB reporting bias associated with lack of awareness or stigma.

Acknowledgments

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Conflict of interest

C.C. is an employee of USAID, which supports the RESPOND project; she has no commercial interest in the intervention and declares no conflict of interest. The other authors have no conflicts of interest.

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